

Mechanical, Electrical, Plumbing with major concentration in HVAC and Refrigeration

Cleveland State Community College

2021 Governor's Investment in Technical Education (GIVE 2.0)

Mechanical, Electrical, Plumbing (MEP) with major concentration
in HVAC and Refrigeration- Cleveland State Community College

IN PARTNERSHIP WITH

1. **Economic Agencies:** Monroe Chamber of Commerce, Tellico Reservoir Development
Agency (TRDA)
2. **Local Education Agency:** Monroe County School District
3. **Employer Partners:** TRANE; Harris Refrigeration

Director: Dr. Tim Wilson , 3535 Adkisson Drive Cleveland, TN 37312

twilson03@clevelandstatecc.edu, evansj@monroek12.org

Co- Director: Janie Evans, CTE Director 205 Oak Grove Road, Madisonville, TN 37354

Funding Requested: \$ \$941,091.70

Dr. Bill Seymour, CLSCC President



Dr. Tim Wilson, Department Chair

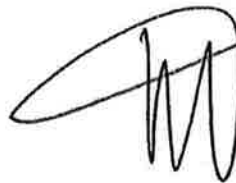


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Program Abstract

Cleveland State Community College (CLSCC) proposes to establish a Mechanical, Electrical, Plumbing (MEP) program of study with a major concentration in HVAC and Refrigeration with Monroe County Schools. This program will benefit underserved students in a rural, at-risk area in East Tennessee. Additionally, the program will address the county's under-represented populations, including exceptional education, African-American, Hispanic, female, and economically disadvantaged students.

Labor market data indicates job growth in this area is high and will continue to increase as companies, homes, and schools look to improve air quality. The Monroe County area is one of the fastest-growing counties in East TN. The need for employees is great as the county looks to provide sustainable livability in the area. With GIVE 2.0 funds, CLSCC will be able to establish a program with the school district that provides students with several industry certifications and a post-secondary certification in HVAC and Refrigeration. Equipment purchased with GIVE 2.0 funding will allow the college to provide training to students at Sweetwater High School and the Cleveland State Community College Monroe County Center in Vonore, TN. The ability to provide a secondary and postsecondary partnership to students in Monroe County will impact more students. The college will be able to influence more students by providing training on high school campuses and adding equipment to the Monroe Center that will allow students from Sequoyah High School and Tellico Plains High School to attend classes their junior and senior years.

Section 1. Demonstration of Need

Located within CLSCC's service region, Monroe County's (MC) population is 46,545 residents with a median household income of \$42,429 and 16.3% of the population living below poverty level compared to the state average of 16.7%. The Monroe County School District comprises 12 schools: six elementary schools, three middle schools, and three high schools. There are 5,262 students with 351 teachers and 26 administrators. The county percentage for economically disadvantaged (ED) students is 32.4%. There are nearly 18.79% of students with disabilities. The county's three high schools are Sequoyah High School, Tellico Plains High School, and Sweetwater High School. Together, the three high schools have a combined enrollment of 1,336 students with the percentage of economically disadvantaged students ranging from a low of 27.3% at Sweetwater to a high of 27.7% at Tellico Plains. The percentage of disabled students ranges from a low of 14.5% at Tellico Plains to a high of 30.5% at Sequoyah (nearly 1 in every 3 students). The three middle schools (Madisonville, Tellico Plains Junior High School, and Vonore) that feed into the high schools have a combined student enrollment of 1,124 students. Additionally, MC has a lower percentage of educational attainment of at least an associate's degree than the statewide average of 21 percent (THEC, 2021). According to the Appalachian Regional Commission (ARC) FY 2021 economic classification, Monroe County is categorized as an *At Risk* Community (ARC, 2021).

In the March 2021 Labor Force Estimates report, Monroe County has an unemployment rate above the Tennessee average of 5.6 percent. (TN DOL, 2021). Manufacturing, Retail, and Healthcare are the primary economic drivers throughout the county with the largest jobs residing in those industries. The unemployment rate is slightly above the state rate as of June 2021 with a

rate of 5.6% compared to 4.9% for the state. As the state's 6th largest county in terms of land mass, Monroe comprises 653 square miles. The mean travel time to work for workers, age 16 and older, is 29 minutes, slightly higher than the mean time of 26.9 minutes for workers statewide and students easily have a 45 to 60 minute commute from home to school. The top employer is JTEKT Automotive Tennessee Vonore with an estimated 1,050 employees. The second largest is Monroe County Board of Education with 734 employees. The third largest employer, Brunswick Boat Group with approximately 738 employees. The population with an Associate's Degree is 21% (state is 36.9%) and with a Bachelor's Degree is 13% (state percentage is 28.9%). The college-going rate is 45.4% as compared to the state rate of 63.4%. (Statistics taken from the Tennessee Economic and Community Development www.tnecd.com/county-profiles). As of 2021, Monroe county is designated as an "at-risk" county by ARC and the county includes two distressed areas. This information is summarized in the table below.

Region	Unemployment Rate June 2021	Percent Below Poverty Level	Percent with at least an Associate's Degree
Tennessee	4.9%	16.7%	36.9%
Monroe	5.6%	19.3%	21%
McMinn	4.8%	15.9%	26.2%
Meigs	5.2%	17.8%	22.8%
Bradley	4.6%	14.7%	32.9%
Polk	4.5%	15.8%	21%

The MEP program will address critical workforce needs in CLSCC's service region by aligning with the Drive to 55 goals, analyzing localized data demonstrating the need for action, and establishing a clear linkage between the proposed grant activities and the local need. Each of these strategies is outlined below.

The 2020 TN State Report Card reports the Monroe County School District is a Level 5 in TVAAS growth for 2018-19. The district's overall ACT Composite is an 18.8 with 30.4% students meeting college readiness benchmarks (Inform TN). Overall college readiness benchmarks were: Math 21.9, English: 46.4, Reading: 32.4, and Science: 22.8. The college readiness benchmarks for Sweetwater High School are as follows: Overall: 26.6, Math: 19.4, English: 38.1, Reading: 29.5, and Science: 22.3.

The Tennessee State Report Card reports Sweetwater Junior High School (Sweetwater City School District and a feeder school to Sweetwater High School) has a student population of 313 students in 7th and 8th grade. At least 16% of the school's student population is Black/Hispanic/Native American. The school has a 36.1% economically disadvantaged population and 14.4% of students with disabilities. Sweetwater High School's *mission* is to provide students with the opportunity to be postsecondary and career-ready by providing a supportive and collaborative environment, a variety of teaching strategies, and a rigorous curriculum. The school's *vision* is to graduate all students with the skills to function, adapt, and contribute to an ever-changing world, enabling them to thrive in a global society.

Sweetwater, TN has a population of 5,895 people with a median age of 43 and a median household income of \$40,158. According to the 2020 census, Sweetwater had a population of 5,895 people with 3,269 households residing in the city. The *ethnicities* of the city include the

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following: White (87.2%), Black or African American (6.5%), Hispanic (4.2%), and other (2.1%). The *per capita income* for a household in the city was \$20,351, and the median income for a family was \$40,158. Males had a median income of \$29,982 versus \$23,075 for females. The per capita income for the city was \$16,746. Approximately 17.5% of the population lives below the poverty line, including 26% of those under age 18 and 15% of those age 65 or over.

Though SHS is primarily located in a rural area, its *catchment area* is predominantly urban in nature. Sweetwater's boundaries include the following: McMinn County, Loudon County, and Interstate 75. Due to its high traffic area location, the *housing stock* of the Sweetwater community has increased significantly since 2019.

Alignment of Drive to 55 Goals

The MEP program will parallel Tennessee's Drive to 55 goals by improving the workforce preparedness and educational attainment of the citizens in the college's service region. Students who participate in this MEP program will attain dual-credit, dual enrollment, and industry certifications. The comprehensive partnerships involving industry, economic agencies, high schools, and CLSCC form the nexus of the MEP program, ensuring maximum impact in terms of educational attainment and workforce development throughout the region.

Localized Data Demonstrating the Need for Action

The U.S. Bureau of Labor Statistics indicates a 4.0% growth in the field. The demand for HVAC Technicians has grown gradually over the past few years. Current job postings reflect approximately 570 positions in the immediate area. A quick search for HVAC Technicians jobs on indeed.com shows over 300 open positions. Monster.com currently shows 270 HVAC

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Technician job requirements. Some industry analysts predict that the nationwide shortage for HVAC technicians will reach over 138,000 by 2021. The increases in the demand for heating and air experts derive from a few different areas. Not only are there a growing number of systems that need to be repaired and maintained, but the technical complexity of heating, refrigeration, and air conditioning units is also increasing exponentially.

Job Outlook for HVAC Technicians

Given the shortage, the overall job outlook for HVAC technicians is exceptionally healthy. The United States Bureau of Labor Statistics (BLS) predicts that the total job growth of all occupations will grow 11% through 2022. When looking specifically at heating, air conditioning, and refrigeration mechanics and installers, the job growth is expected to grow at 21%—nearly double the projected job growth of all jobs combined. The TSBA Data Dashboard points to at least a 23% growth rate in the HVAC sector in the East Region-Monroe County's regional area. The TN Department of Labor and Workforce development also lists the HVAC sector as an in demand occupation in the East region (Jobs4TN.gov).

Clear Linkage Between Grant Activities and Local Need

According to the Appalachian Regional Commission (ARC) FY 2021 economic classification, Monroe County is considered At-Risk (ARC, 2021). According to TSBA's Data Dashboard, job opportunities within the Architecture and Construction career cluster will see at least 14% growth in the East and Southeast region. The MEP (mechanical, electrical, and plumbing) program of study falls within this career cluster. Grant activities will allow the Monroe County school district to meet the needs of a unique student population at Sweetwater

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High School. Its student population enjoys a rich historical tradition of the school's rural roots while at the same time is part of the changes brought about by a more urbanized population. In addition, the CTE program of study in MEP will provide an opportunity for students to obtain postsecondary credentialing while still in high school. Students will graduate from high school with Ready Graduate status and receive a technical certificate in HVAC and Refrigeration from Cleveland State Community College at the same time. At least 28% of households in Monroe County are single-parent. Single-parent households often need additional support when students transition from junior high to high school. Grant activities will provide opportunities for SHS to better connect with parents and highlight an exceptional opportunity for students, including nontraditional students. Grant activities will also fulfill the need for parent communication and outreach between Sweetwater High School and Sweetwater Jr. High School. In addition, grant activities will provide opportunities to engage industry and local business partners in creating more work based learning opportunities for students. Increasing WBL participation is a Perkins V goal for Monroe County Schools.

Section 2. Project Plan

Detailed Timeline and Overview

The table below provides an overview of the three phases which comprise the project timeline. A detailed monthly timeline that includes Program Objectives is provided in Appendix B.

Phase	Program Activities	Project Milestones
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<p>Phase I</p> <p>November 2021 - July 2022</p>	<p>Accept Grant Funding</p> <ul style="list-style-type: none"> • Celebrate Program Opening • Renovate SHS Classroom • Student Outreach • Purchase Equipment • Hire and train Faculty 	<p>Grant Selection Committee Meets</p> <p>Dr. Patty Weaver - Cleveland State Community College</p> <p>Dr. Janie Evans - Monroe County Schools</p> <p>Give grant announcement</p> <p>Students are introduced to new MEP program of study</p> <p>Equipment arrives and classroom space is ready.</p>
<p>Phase II</p> <p>August 2022-April 2024</p>	<ul style="list-style-type: none"> • Begin post award full implementation • Welcome first cohort students to MEP/HVAC Refrigeration program. • Professional development • Host Career Expos and Career Awareness events • Welcome first cohort students into the 2nd year of the program (August 2023). • Recruit and welcome second cohort of students into MEP/HVAC program • Testing for Industry Certifications • Complete Evaluation of program 	<p>Students complete their first year in the cohort program.</p> <p>Work-Based Learning Outreach to Community Partners</p> <p>Monroe County CTE Advisory Council Meets - Welcome and Introductions of Give Grant Partners</p> <p>Students Complete first year in Cohort program May 2023.</p>

Phase III - Sustainability Post Grant	<ul style="list-style-type: none"> • CLSCC/MCBOE will continue to recruit and maintain the MEP/HVAC program • Third Cohort of students will be admitted into the program • Additional funding sources will be utilized to maintain program 	
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Clear Alignment of Workforce Data and Drive to 55 Goals

In order to meet the Governor' goal of 55% of Tennesseans achieving a college degree or certificate by the year 2025, Monroe County Schools and Cleveland State Community College will implement the following activities:

Grant Activity	Workforce Data/Drive to 55 Alignment
Renovate and Equip HVAC labs at Sweetwater High School and Cleveland State Monroe Center	Equipment will be used to implement a new HVAC program in Monroe County and provide opportunities for students and adults to complete a post-secondary certificate and various industry certifications. Labor market data indicates a high need for trained individuals in this high-wage, high-skilled occupational sector. MEP field market data reflects growth rates of 13%-14%.
NC3, OSHA, NCCER and EPA 608 Industry certification instructor/student training and testing	Students will complete an HVAC certificate training program, while adding stackable credentials in the form of nationally recognized industry certifications. This pathway will provide students with entry and exit points to both postsecondary and workforce.
Career Expos with industry and community partners	Career Expos will provide students, parents, and community members the opportunity to become

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	aware of the careers available. These expos will also provide opportunities for promotion of programs and careers.
Post-secondary and industry tours for K-12 students	Faculty and students will participate in on-site or virtual tours with HVAC companies, manufacturers and commercial companies to promote career opportunities in the field. HVAC career awareness in commercial and residential will be provided to allow students the opportunity to learn more about this high-wage, high-skilled occupation.
Development of a high school SkillsUSA chapter and participation in regional, state, and national events.	Sweetwater High School does not currently have a local chapter of SkillsUSA. Through this proposal, we will develop a new chapter, which will allow students the opportunity to participate in leadership and skills events, creating networking experiences with other students, teachers, and industry professionals across the state and nation.
Guest speakers, career fairs, and career exploration for K-12	Industry subject matter experts will provide students with the opportunities to learn more about the career path for these high-wage, high demand careers.
Capstone/Practicum Work-based learning opportunities	Trane and Harris Heating and Air will implement work-based learning experiences in order to provide students with the opportunity to apply the knowledge learned in the classroom to real world settings. Students learn about the work environment, positive work habits and work with professionals within the field.
Industry and Education Advisory Committee Meetings	Continued advisory committee meetings will ensure constant communication, feedback, and updates in regards to training needs, workforce needs, desired skills, and recognized certifications.

Measurable Objectives for Each Phase of the Project

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Program Objective 1: Begin training of NC3 “*train the trainer*” certifications for 3 faculty members.

Program Objective 2: Increase the number of students enrolled in the HVAC program.

Anticipated enrollment Fall of 2022 will be at least 20 Junior and Senior students for school year 2022-23; Additional 20 students will be enrolled during school year 2023-24.

Program Objective 3: Increase participation of underrepresented populations into the HVAC program. Anticipated enrollment of Fall 2022 will include at least 5 students from underrepresented populations for 2022-23; Additional 8 students will be enrolled during the school year 2023-24.

Program Objective 4: Increase the percentage of students earning industry credentials. 50% of participating students will earn 2 industry credentials during the 2022-23 and 2023-24 academic year.

Program Objective 5: Increase the number of Work-based learning partner opportunities. Increase industry partners in 2022-23 by 5; 2023-24 by 8 providing job shadowing, WBL, internships, and practicums.

Phase	Objective 1	Objective 2	Objective 3	Objective 4	Objective 5
Phase I Spring 2022	Train the Trainer NC3/Implementa- tion of grant	Increase enrollment Number of Students Recruitment	Increased Participation of Underrepresented Pop. Recruitment	Increase Industry Certification Baseline Established	Number of WBL Partners 5

Phase II AY 2022-23	Continued Professional Development	30	5	25	8
Phase III AY 2023-24	Continued Professional Development	70	25	65	15

Recruitment of Underrepresented Student Groups in CTE Programs

Cleveland State Community College will work with Monroe County Schools to recruit underrepresented student groups, including females and minorities into Sweetwater High School's CTE MEP program. Sweetwater High School has the unique advantage of sharing both rural and urban characteristics. Currently, the school's percentage CTE Concentrators among black/hispanic/Native American students is at least 39%. Of the school's economically disadvantaged group nearly 35% are CTE concentrators. ELL learners make up 33.3% of CTE concentrators, while at least 22% of students with disabilities are CTE concentrators. The guidance counselors will work with faculty to recruit and advise students who are underrepresented in the MEP program. Cleveland State's Dual Enrollment recruiters will assist in working with underrepresented students. The MEP program of study in Sweetwater High School will address the need for skilled workers, as well as serve more non-traditional students. In addition, the program will allow students to earn stackable industry-recognized credentials that are approved by TDOE and will lead to more students becoming Ready Graduates. Both industry and chamber of commerce partners have pledged to support students who are able to complete the MEP program of study.

Project Governance and Accountability Plan

The Monroe County Schools' advisory committee will be involved in decisions pertaining to the MEP/HVAC program of study at Sweetwater High School. In conjunction with Monroe County Schools Cleveland State's project director will be part of the governance and accountability process.

Structure of Work-Based Learning Program

Monroe County's Sweetwater High School has an established work-based learning program that incorporates real world work experience and provides employer mentors. Work-based learning in Monroe County provides opportunities for students to apply classroom theories to practical problems as well as explore career options. Increasing WBL experiences is a Perkins V goal for Monroe County's CTE department. A major component of the new MEP program of study is to schedule students in a structured and meaningful way that incorporates a WBL experience during the spring of a student's senior year. A student will also complete the last DE course that culminates in an HVAC/Refrigeration certificate, thus making him or her more marketable as a WBL employee and a future employee following graduation. Establishing an MEP program of study that will connect more students, including non-traditional populations, to work and postsecondary credentialing will encourage employers to participate in WBL and lead to an increase in WBL numbers. The Tennessee Reservoir Development Agency(TRDA) and the Monroe County Chamber of Commerce are Monroe County partners who will work with the school district to assist in broadening WBL experiences for students. In addition, Monroe County Schools will seek out HVAC employers to serve on the CTE Advisory Council.

Detailed Project Timeline and Overview

Cleveland State Community College and Monroe County Schools have met several times to discuss the development of this proposal and timeline. The educational partners have also met with industry partners to discuss the overall success of the program. The program consists of pre-planning, post award implementation (Phase 1), complete program implementation (Phase 2), and sustainability, (Phase 3). A detailed timeline follows:

Proposal Phase - September, 2021 - November, 2021

- By September, Monroe County Schools and Cleveland State Community College will develop a grant proposal for a new HVAC program of study at Sweetwater High School and the Monroe Center for Sequoyah High School and Tellico Plains High School. The program supports a pathway for students into the local market area where research shows a demand in the HVAC and construction industry.

Post-Award Implementation (Phase 1) November 2021-July 2022

- By November, 2021, Architect will be hired to begin renovation of classroom space at Sweetwater High School.
- Beginning in January 2022, Cleveland State Community College will work with Trane, Inc to purchase equipment for the certified Trane Training Labs at Sweetwater High School and Cleveland State Monroe Center as evidenced by quotes, sole source documentation and purchase orders.
- By March, 2022, guidance counselors and guest speakers will have met with Junior and Senior classes to begin recruitment into the Fall 2022 HVAC program. Students will begin pre-registration for courses in March.
- By April, 2022, Cleveland State will develop a job description, post, interview, and hire a full time HVAC Instructor according to TBR policies. This faculty position will begin July 1, 2022. The position will be a ten month position for 2 years. Cleveland State will also develop a job posting for an adjunct instructor to teach HVAC at the CLSCC Monroe Center.
- By May 15, 2022, Cleveland State Community College and Monroe County Schools will host career expos to K-8 students in each of the 4 Middle Schools and 1 Sweetwater City Middle school to create the awareness of the HVAC career and pathway. Industry partners will assist in the events sharing information in regards to these in-demand occupations.
- January, 2022 - July, 2022, instructors will participate in Train the Trainer training for the NC3 industry certifications.

PHASE II - Implementation of Program August 2022-April 2024

- By August, 2022, HVAC classes will begin on the campus of Sweetwater High School and at the CLSCC Monroe Center. It is estimated that 100 high school students could earn dual credit and up to 18 dual enrollment credits and a CLSCC Certificate in HVAC and Refrigeration Technical Certificate within the 30 month grant period.
- By August, 2022, Industry certification opportunities will be offered at Sweetwater High School and the CLSCC Monroe Center. In addition, 4 industry certifications, NC3 Airflow, Heat Pumps, Refrigeration Diagnostics, and Variable Speed Motors; NCCER Plumbing and Electrical, and EPA 608 Technician Certification.
- By Spring of 2024, high school students will be eligible to participate in capstone work-based learning experiences.

PHASE III - Sustainability Post-grant April 2024 and Beyond

- Cleveland State Community College and Monroe County Schools will continue to support the Trane HVAC Training Program along with CLSCC HVAC Dual Credit/Dual Enrollment by sustaining the instructor, equipment and supplies by utilizing other funding sources available to both institutions. These sources may include local, federal, and new grant funds along with industry support.

Coordination of the Program

The MEP program coordinator and leadership will oversee the program activities and work closely with the MEP Advisory Council and industry partners. Cleveland State Community College and Monroe County Schools will work together to ensure the success of the program. The instructor at the high school will receive support from both the secondary and postsecondary partner as well as industry partners in the community.

Supervision of Students

Student supervision occurs when students are in school and/or in class. While in the main part of the school, the Sweetwater High School administration and faculty are responsible for student supervision. While students are in class, the instructor will be responsible for student

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supervision as students are expected to maintain proper behavior and follow all safety protocols in accordance with Monroe County Schools rules and procedures.

Development of Personalized Learning Plans

School counselors will work with students to develop a personalized learning plan. Career interest inventories and career exploration activities will begin in seventh and eighth grades. School counselors will work with students to help them choose a program of study based on student interest and career exploration activities. Freshman transition activities will include SHS orientation and parent nights that will introduce students and parents to the MEP program of study. School counselors and Cleveland State Community College DE staff will assist students in dual credit and dual enrollment registration. Students will develop a personalized learning plan that will allow opportunity in their class schedule for WBL participation. School counselors will assist Freshmen students with registration for the MEP/HVAC program of study. Students will follow a program of study throughout their high school career that will culminate in dual enrollment credits leading to an HVAC certification and a high school diploma.

Student Assessment Using Multiple Measures

Students will participate in a variety of formative and summative assessments. NC3 Trane Residential HVAC assessments. Tenth grade students will take a final dual credit exam in MEP Systems. Dual enrollment students will participate in a variety of assessments that will measure application as well as content knowledge of each dual enrollment subject area. In addition, students will be able to sit for at least 5 Trane certifications in the following: (1) NC3 Trane Building Automation Systems, (2) NC3 Trane Residential HVAC - Airflow, (3) NC3 Trane

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Residential HVAC - Air-to-Air Heat Pumps, (4) NC3 Trane Residential HVAC - Refrigeration Diagnostics, (5) NC3 Trane Residential HVAC - Variable Speed Motors.

Evaluation

Students will receive high school credit for mastering required state standards and competencies based on TN Department of Education requirements. Progress reports are provided for students and parents every four weeks. Report cards are sent out every nine weeks. Students will also have access to progress reporting through Cleveland State. Student evaluation may occur in a number of ways such as through project-based opportunities, hands-on learning labs, and formative and summative evaluations. Students will receive college credit for mastering required content and material based on Tennessee Board of Regents requirements.

High-quality Experiences

Students will participate in high-quality learning experiences leading to Ready Graduate status and a postsecondary technical certificate in HVAC and Refrigeration. TN Department of Education (TDOE) and TN Board of Regents (TBR) curriculum standards will be followed in high school, dual credit, and dual enrollment course educational opportunities. Hands-on class labs and projects as well as work-based learning experiences will provide students with a variety of high-quality learning experiences.

Paid Work-Based Learning Experiences

Students will participate in a variety of work-based learning opportunities including those with paid compensation.

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Alignment of Job-Related Skills and Program Curricula

Dual Credit/Dual Enrollment Alignment for Cleveland State Community College HVAC

Program with Monroe County High School

Course Name At Sweetwater High School	Alignment to CLSCC Classes	Industry Certification s Available	Number of possible Credits Earned
Course 1 Fundamentals of Construction Local Dual Credit Grades 9-12 No prerequisites	Industrial Safety	OSHA 10	3 Credit Hours
Course 2 MEP Mechanical Electrical and Plumbing Local Dual Credit Grades 9-12 Prerequisites- Fund. Of Construction & MEP	EETC 1351 AC and DC circuitry, electrical components in HVAC systems, troubleshooting and repair	NC3 Trane 1-Airflow EPA 608 Technician	3 Credit Hours
Course 3 Dual Enrollment HVAC – 1 Grades 11-12 Prerequisites – Fund. Of Construction & MEP	METC 1340 HVAC 1 –Introduction to HVAC/Refrigeration EETC 1351 – AC and DC circuitry, electrical components in HVAC systems, troubleshooting and repair	NC3 Trane 2 Refrigerant Diagnostics	6 Credit Hours

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Course 4 Dual Enrollment HVAC-2 Grades 11-12 Prerequisites – Fund. Of Construction, MEP, DE HVAC 1	METC 1341 – HVAC Systems Design METC 1342- HVAC II: Refrigeration Applications	NC3 Trane 3 Variable Speed Motors	3 Credit Hours
Course 5 Dual Enrollment HVAC-3 Grade 12 Prerequisites – Fund. Of Construction, MEP, DE HVAC 1 & 2	METC 1343 – Industrial/Commercial HVAC Systems		3 Credit Hours

The following chart details the job-related skills and program curricula:

Grade 9	Grade 10	Grade 11	Grade 12
Fundamentals of Construction	Dual Credit MEP Systems (Aligned with HVAC Electrical Systems)	DE MEP Systems I (Aligned with Intro to DE HVAC/Refrigeration) DE MEP Systems II (Aligned to DE HVAC Systems Design)	DE MEP Systems III (Aligned with HVAC II: Refrigeration Applications) DE MEP Systems IV Industrial/Commercial HVAC Systems
		*Students earning OSHA 10 certification will receive credit for DE Industrial Safety NC3 Trane Building Automation Systems	*Spring WBL Opportunity *Industry Certifications: NC3 Trane Residential HVAC - Air-to-Air Heat Pumps

		NC3 Trane Residential HVAC - Airflow	NC3 Trane Residential HVAC - Refrigeration Diagnostics NC3 Trane Residential HVAC - Variable Speed Motors. EPA 608 Technician NCCER -PMI, Multimeter
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The program curricula provides opportunities for hands-on learning and lab experiences as well as opportunities to earn Trane industry certifications.

Competency-Based Learning Outcomes Aligned with Industry Credentials

Students will have the opportunity to learn HVAC skills through Trane equipment that will lead to an NC3 certification. These certifications are recognized by the TN Department of Education's Tennessee Promoted Student Industry Credentials (Tn.gov) These recognized certifications assist students in earning Ready Graduate status. For example, any students receiving an NC3 certification may combine it with the two dual enrollment opportunities provided by Cleveland State Community College and achieve Ready Graduate status.

Deep Learning Opportunities and High Impact Practices

Role of Proposed Equipment Request

The equipment purchases are critical to delivering training and testing to participants.

Equipment Description	Estimated Cost	Associated Programs
Trane Training Program Equipment	\$37,880.00	Trane NC3 certification.
Plumbing & Electrical Trainers	\$30,000.00	NCCER/NC3 Certifications
Precision Measurement Tool Kits	\$70,000.00	NC3 PMI Certifications
Advanced Multimeter Tool Kits	\$13,000.00	NC3 Multimeter Certifications

Section 3. Strength of Partnerships

The foundation of the proposed MEP program will be the ongoing, comprehensive partnerships between regional industry, economic agencies, local education agencies, and CLSCC.

Detailed Description of Each Partner's Role

Industry Partners in the MEP program will provide support and guidance in the development and implementation of the program to ensure alignment with industry standards and provide subject matter experts to assist faculty. All partners will participate in career expos, classroom visits and work-based learning opportunities to students accepted into the program. They will assist in the interview process and select students to be part of the Work-based learning positions.

Economic Agencies will actively participate in MEP by assisting with the identification of local industry needs. Two economic agencies in the Monroe County service region will work with MEP leadership to communicate the benefits and outcomes of the program to the industry and citizens in the service region in order to attract new industry partners and program participants.

Mechanical, Electrical, Plumbing with major concentration in HVAC and Refrigeration

CLSCC will work with senior higher education institutions to provide opportunities for MEP participants to continue their education. Articulation agreements with Monroe County Schools are in place with Cleveland State Community College. CLSCC leadership will work to create similar agreements for the plumbing and HVAC programs.

Local Education Agencies (LEAs) support the MEP program by working with CLSCC to expand work-based learning and dual enrollment opportunities for their students. In addition to providing advice to MEP students, counselors at participating high schools will work with MEP leadership to support the recruitment of underserved students in MEP programs.

Capabilities of Each Partner to Ensure Success The roles listed above are well-defined and have been discussed in advance with leaders of the organizations and companies. Monroe County has expressed a commitment to scaling the MEP program and working with CLSCC to ensure its success.

MOU or Letters of Support from Economic Agencies, Industry Partners, and LEAs

Memorandums of Understanding from economic agencies, chamber of commerce, and industry partners, and LEAs have been received, and are located in Appendices D, E, and F, respectively.

Section 4. Budget Plan

Clear Alignment Between Funding Requests and Grant Activities

All of the expenditures listed in the budget in Appendix A directly support the grant activities and outcomes, as outlined by line items below.

Mechanical, Electrical, Plumbing with major concentration in HVAC and Refrigeration

Personnel comprise a part of the budget and are extremely important to the success of this MEP program. A full time high-school instructor will be hired for Sweetwater High School in Monroe County to support the Mechanical, Electrical, and Plumbing Program (MEP). This instructor will be responsible for teaching the high school dual credit courses. A full time CLSCC instructor will be hired to teach the Dual Enrollment classes that align with Cleveland State's HVAC program. Additionally a part time Adjunct instructor will be hired to teach the HVAC program at the Cleveland State Community College Monroe Center in addition to teaching Dual Enrollment for students that will come from Sequoyah High School and Tellico Plains High School. A part- time coordinator will be hired to coordinate Career Expos, Career Awareness Events, Parent sessions and Industry tours. The coordinator will work approximately 20 hours a month at \$15.00 per hour to coordinate events.

Professional fees, Grants, and Award will include the cost of the architectural design for the renovation of the Sweetwater High School classroom as well as materials for the renovation of the classroom. Due to unforeseen supply chain issues due to COVID, it is possible renovation costs could reach \$100,000.00. Additionally, \$100,000.00 will cover up to 50% of WBL salaries for students participating in Work-based learning experiences with industry partners.

Equipment purchased through funds within this GIVE grant application, will allow Sweetwater High School's new HVAC training program to replicate the equipment being used in industry. The equipment is aligned to industry standards and will assist students in providing hands-on training with equipment they will utilize in the field once hired by various companies. These real life hands-on experiences, will assist students in the successful completion of nationally recognized industry certifications. Through NC3 and the Trane partnership, students will have

Mechanical, Electrical, Plumbing with major concentration in HVAC and Refrigeration

the opportunity to complete 4 industry certifications that Trane highly recognizes and will hire applicants that present these certifications. Plumbing and AC/DC electrical trainers will be purchased for the NCCER training and certifications. Additional, Precision Measurement and Multimeter Tool Kits will provide NC3 certifications. The complete list of equipment is Section 2 of the appendix.

Travel expenditures are necessary to assist in the transportation of students from Sequoyah High School and Tellico Plains High School. Many students from these two high schools in the county want to participate in programs offered at the Cleveland State Monroe Center, however do not have transportation to and from the Center. Expenses traveling to and from Work-based learning sites will also support the MEP program. In addition, travel will also cover participation in Skills USA which is an important aspect for students to experience real life competitions. Students can compete in Heating, Ventilation, Air Conditioning and Refrigeration as well as in Plumbing, Construction, Motor Controls and many other possible areas.

Other Expenditures include the purchase of a set of classroom textbooks for each site, and any additional cost associated with local dual credit testing and industry certification testing for students. Approximately \$100,000.00 in last dollar scholarships will be provided for students after utilization of Dual Lottery Funding to cover the expenses of the 6 Dual Enrollment classes needed to complete the certificate. Many students at SHS are at or below poverty level and therefore would not be able to complete college certificate without this additional funding.

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Explanation of Any Indirect Costs - CLSCC is requesting indirect costs of eight percent, for a total of approximately \$62,332.64. These costs may be incurred for purposes not readily identifiable with a specific cost objective, such as HR or accounting.

Section 5. Sustainability

CLSCC leadership is fully committed to the continuance of the MEP program beyond the GIVE grant period of 30 months. This commitment includes support from the school district, industry partners, and our local workforce development agencies to ensure the sustainability of this program as long as there is a continued workforce need.

Plan for Sustaining the Program Beyond 30 Months

The MEP project is fully sustainable because CLSCC leadership is committed to the full-scale implementation of the program and the continued expansion of work-based learning opportunities beyond the grant period. As enrollment dictates,

- CLSCC will provide the dual enrollment instructor for the high school program and fund adjunct instructors as needed at the Monroe Center.
- CLSCC will provide professional development opportunities for post secondary staff members.
- CLSCC will support the technology and equipment needed for dual enrollment programs, and participate in MEP advisory council meetings.

Monroe County School District will sustain the program by -

- Provide opportunities for teacher professional development, providing classroom instruction and additional lab space, and providing other funding sources for additional equipment and maintenance of that equipment.
- Continue to recruit and actively promote the HVAC program to K-8 students, parents and industry partners.
- Provide other funding sources for secondary equipment, maintenance and consumables.
- Provide classroom and lab space, utilities, curriculum materials and technology.
- Pursue additional grant opportunities to align with this initiative.

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- Absorb the cost of a full time high school instructor for the MEP program at the end of the grant period

Both educational institutions, along with the Monroe County Chamber of Commerce and Tellico Reservoir Development Agency (TRDA) and industry partners will continue to participate in advisory council meetings held semi-annually or quarterly. Feedback will be provided to maintain alignment with current practices in the industry. Industry partners will continue to provide support to the program through equipment donations and Work-based learning opportunities as long as the labor market remains constant.

Detailed Plan for Maintaining Communication and Sharing Resources

The MEP Advisory Council will continue to function beyond the GIVE 2.0 grant period. The college has existing working relationships with the economic agencies, industry partners, and local education agencies, and CLSCC leadership believes that the MEP will help strengthen and deepen these relationships. Data will be shared regularly between CLSCC and MEP partners to support the continuous improvement and expansion of the program. MEP partners will assist with the program growth and improvement through the regular evaluation of the program's processes and outcomes. MEP leadership will continue creating and delivering biannual reports to all program partners, and program data will be maintained and shared to assist in recruitment efforts and future work-based learning MEP programs at CLSCC.

Section 6. Economic Status Acknowledgement

According to the Appalachian Regional Commission (ARC) FY 2021 economic classification, Monroe County is considered At-Risk (ARC, 2021). The Monroe County

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Chamber of Commerce and Tellico Reservoir Development Agency (TRDA) has agreed to support the MEP program and assist with identifying local industry needs. Strengthening opportunities in Monroe County is a primary focus in the development of Career and Technical programs such as the MEP. The program prepares students for a successful entry into the workforce and out of potential poverty. At least 28% of households in Monroe County are single-parent. Single-parents often need additional support when students transition from junior high to high school. The county percentage for economically disadvantaged (ED) students is 32.4%, and Sweetwater High School population is approximately 75-80% Free and Reduced lunch households. Grant activities will provide opportunities for SHS to better connect with parents and highlight an exceptional opportunity for students, including nontraditional students.

Appendix A

Grant Budget

Institution: Cleveland State Community College				
The grant budget line-item amounts below shall be applicable only to expenses incurred during the following applicable period: BEGIN: November 12, 2021 END: May 15, 2024				
POLICY 03 Object Line-Item Reference	EXPENSE OBJECT LINE-ITEM CATEGORY 1	Grant Contract	Grante e Partici pation	TOTAL PROJECT
1,2	Salaries, Benefits & Taxes	333,501.20		333,501.20
4,15	Professional Fee, Grant & Award 2	200,000.00		200,000.00
5, 6, 7, 8, 9, 10	Supplies, Telephone, Postage & Shipping, Occupancy, Equipment Rental & Maintenance, Printing & Publications	5,000.00	0.00	5,000.00
11, 12	Travel, Conferences & Meetings	44,000.00	0.00	44,000.00
13	Interest 2		0.00	
14	Insurance		0.00	
16	Specific Assistance to Individuals	0.00	0.00	0.00
17	Depreciation 2		0.00	
18	Other Non-Personnel 2	152,000.00	0.00	152,000.00
20	Capital Purchase 2	136,880.00	0.00	136,880.00
22	Indirect Cost	69,710.50	0.00	69,710.50
24	In-Kind Expense		0.00	
25	Grand Total	941,091.70		941,091.70

Appendix A: Grant Budget & Line-Item Detail

Line 1 Salaries and Wages

		Amount	Item	Description
Line Item 1	Salaries and Wages	\$110,000.00	Full time HVAC Instructor- Cleveland State	Salary for July, 2022-April, 2024 (2 years with annual salary of \$55,000.00 plus benefits.
		\$95,358.00	Full time HVAC Instructor Monroe County Schools _ SHS	Salary for July 2022-April 2024 (2 years with annual salary of \$47,679.00 plus benefits)
		\$30,000.00	Adjunct HVAC Instructor	Annual salary with no benefits or 2 years.
		\$10,000.00	Faculty Externships	10 Faculty will participate in Externships with industry partners to learn more about the MEP/HVAC field.
		\$6,000.00	Part Time Project Coordinator/Career Services	Part time coordinator - 20 hours a month for 20 months at \$15.00/hour no benefits.
Line Item 2	Employee Benefits and Payroll Taxes	\$44,000.00	HVAC Instructor- CLSCC	40% of \$55,000.00 for Benefits
		\$38,143.20	MEP/HVAC Faculty - MCBOE - SHS	40% of \$95, 358.00

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Line Item 4	Professional Fees, Grant, Award	\$100,000.00	Contractor/Architect Fees for Renovation	Architect and contractor fees for the renovation of existing classroom space at SHS in order to convert to a functional HVAC Learning Lab
		\$100,000.00	Salary Reimbursement WBL	
Line Item 5	Supplies	\$5,000.00	Consumables/Events	Office supplies, food for events- advisory council meetings.
Line Item 6	Telephone			
Line Item 7	Postage and Shipping			
Line 8, 9, 10	Printing and Publications			
Line Item 11	Travel	\$4,000.00	SkillsUSA	Funding to start Chapter and implement activities for organization
		\$30,000.00	Transportation for Students to participate in WBL and to travel to Monroe Center	Bus/Van transportation to take students to CLSCC institution for Dual Enrollment classes and possible WBL activities, industry tours, etc
Line Item 12	Conferences and Meetings	\$10,000.00	SkillsUSA Chapter Activities	Regional, state, and national conferences for 20 participants
Line Item 18	Other Non-personnel items	\$12,000.00	NC3 Train the Trainer Certifications, EPA 608 training materials	Training and testing vouchers for HVAC industry certifications
		\$5,000.00	OSHA 10 and OSHA 30 testing vouchers for	OSHA 10 AND OSHA 30 testing vouchers for

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			students	students through CareerSafe and other online providers.
		\$10,000.00	Marketing Materials	Program marketing materials/giveaways
		\$100,000.00	Students Scholarship	Cover any tuition costs of CLSCC HVAC Certificate program after Dual Lottery grants. Last dollar coverage of tuition
		\$25,000.00	Textbooks	2 sets textbooks, 1 for SHS, 1 for CLSCC
Line Item 20	Capital Purchases	\$37,880.00	Split System Air Conditioning Unit	Heat Pump outdoor training units 4 sets total . 2 sets for Sweetwater HS and 2 sets for CLSCC Monroe Center
		\$15,000.00	Plumbing Trainers	Equipment trainers for plumbing
		\$14,000.00	AC/DC Electricity Trainers	Electrical Trainers
		\$70,000.00	NC3 Precision Measurement Certification Tool Cart	Tools required for PMI certification times 2 carts, for SHS and Monroe Center
Line Item 22	Indirect Costs	\$69,710.50	Indirect Costs	8% to cover CLSCC indirect expenses-accounting, HR, etc.

Appendix B:

Monthly Timeline Details

Appendix B: Monthly Timeline October 1, 2021 – April 30, 2024

Month	Activity	Partners	Measurable Objectives	Program Objectives
Fall 2021				
October 2021	Receive Award Notice	CLSCC/Monroe County Schools/Trane/RDA/Harris Heating and Air	Notified by THEC via Email	5
November 2021	Hold initial GIVE Committee meeting to present to Monroe County Board of Education- Principal SHS, CTE Director, CLSCC. Advisory Council meetings will be held quarterly,	CLSCC, Industry partners, Economic Development Agencies, LEAs	Minutes will be kept of meetings Reports will be shared each semester as to progress . Qtrly reports will be sent to THEC and GIVE partners on budget expenditures and summary activity report	5
	Begin development of marketing materials for program recruitment. (brochures, social media posts, table top displays. Classroom visitation recruitment sessions planned.	CLSCC, Monroe County Schools	Have materials developed and printed by spring	3
	Work with equipment vendors to finalize quotes on equipment	CLSCC		1, 2, 3, 4, 5
	Purchase, order and install equipment through April 2022	CLSCC , MCBOE	Purchase order requisitions will be submitted for all equipment purchases	1, 2, 3, 4, 5
	Recruitment of industry partners at local roundtable ECD meetings	TRDA, Chamber of Commerce, CLSCC	Maintain notes from Roundtable meetings. Track visits to industry	5

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			partners for possible relationships.	
	Begin recruitment and registration of Adult students	CLSCC Recruitment team		1, 3
December 2021	Give grant celebration/social media celebration	CLSCC, MCBOE, Industry partners	Post story in local newspapers celebrating GIVE grant award and	1, 3, 5

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			launch of new CTE program	
	Preparation of SHS classroom for renovation	Sweetwater High School/MC maintenance	Notification will be provided to the contractor that the classroom is ready for renovation.	1, 2, 3, 4, 5
	Work with MC County Architect on renovation for SHS	MCBOE, CLSCC	Architect will provide CLSCC and MCBOE with architectural designs for renovation	1, 2, 3, 4, 5
	Write job description for CLSCC Faculty member and High School Faculty	CLSCC, MCBOE	Job description completed by January, 2022. Positions posted by March, 2022.	1, 2, 3, 4, 5
	End of semester meeting with LEA for updates	CLSCC, MCBOE	Planning meeting, discussion of hiring process, next steps, schedule development.	1, 2, 3, 4, 5
Spring 2022				
January 2022	Continue purchase of Equipment	CLSCC MCBOE	Purchase requisitions will evidence purchases of equipment.	1, 2, 3, 4, 5
	Accept Architect recommendations, begin renovation of space at SHS .	MCBOE	Renovations will evidence work has begun.	1, 2, 3, 4, 5
	Update course guides for spring student registration and enrollment for 2022-23	MCBOE SHS Guidance Counselors	Course guidelines will be provided	2, 3
	Continue outreach and recruitment of adult population	CLSCC recruitment team		2, 3
February 2022	Hire contractor/supplies to complete renovation of SHS classroom	MCBOE	Quotes will be secured from contractor and purchase supplies	1, 2, 3, 4, 5

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			necessary to complete renovations	
	Begin promotion and marketing of Adult population for Fall semester at Monroe Center	CLSCC	Track responses on spectate as to inquiries about program	2, 3
March 2022	Continue Upgrade of Space	MCBOE	Completion of renovation to be completed by April 2022	
	Begin Give grant presentations for Freshman Transitions: SHS 8th Grade Orientation and Parent Night	MCBOE, CLSCC recruitment team	Sign in sheets will be evidence of orientations and parent sessions	2, 3
	Begin pre-registration for SHS, SQHS, and TPHS students in HVAC program	MCBOE, CLSCC	Enrollment will evidence registration	2, 3
April 2022				
	Conduct interviews for instructor	MCBOE for High School instructor CLSCC for Higher Ed faculty	Faculty members will be hired by June 2022	1, 2, 3, 4, 5
	Classroom renovation completed and inspected	MCBOE	Completion certificate provided by contractor and inspection	1, 2, 3, 4, 5
	Hold GIVE Grant Committee Advisory meeting	MCBOE, CLSCC	Meeting minutes will be collected and updates reported. Meetings will be quarterly	5
May 2022				

Mechanical, Electrical, Plumbing with major concentration in HVAC and Refrigeration

	Continue pre-registration for Fall semester for HS students	MCBOE	Schedules will evidence enrollment in MEP/HVAC	2, 3
	Monroe County CTE Advisory Council meets	MCBOE	Sign in and meeting notes will evidence meeting	5
	Faculty member begins NC3 training	CLSCC Trane/NC3	Completion of NC3 train the trainer certificate	1
June 2022	Equipment purchases completed and installed	CLSCC MCBOE	Completed by July 2022	1, 2, 3, 4, 5
Fall 2022				
August 2022	Begin MEP/HVAC Program at Sweetwater High School	CLSCC MCBOE	Classes will be held at SHS and at CLSCC Monroe Center	1, 3
September 2022	Classes continue at SHS and MC Center	HVAC Instructor	Classes begin and 15 students are enrolled at SHS; 15 students enrolled at MC CLSCC Center	2
October 2022	NC3 first certification training/testing begins	HVAC Instructor	50% of students pass first NC3 certification	2
	Registration Begins for Spring Semester	MCBOE Guidance Counselors/ CLSCC	Enrollment of students into spring semester	2, 3
	GIVE Grant Advisory Council quarterly meeting	MCBOE CLSCC	Minutes of meeting and sign in sheets will be maintained	5
November 2022	Classes continue	HVAC Instructors	Students enrolled and successfully completing class	2, 3
	Faculty member recruits partners for WBL sites	HVAC Instructor CLSCC	Documentation and tracking of industry visits	5

Mechanical, Electrical, Plumbing with major concentration in HVAC and Refrigeration

	Develop end of course surveys for fall semester	HVAC instructor	Survey administered by end of semester	2, 3
December 2022	Courses Continue at SHS and Monroe Center	HVAC Instructor	End of semester testing	2, 3
	Complete end of course surveys	HVAC Instructor	Collection of end of course surveys	2, 3
Spring 2023				
January 2023	Spring semester classes begin	MCBOE CLSCC	Enrollment for Spring at SHS and MC Center	2, 3
February 2023	Continue courses at SHS and Monroe Center	HVAC Instructor	Successful passing of the NC3 and NCCER testing.	1, 4
	Marketing and promotion continues for Adult population	CLSCC	Social media, advertising will reflect recruitment of adult population	2, 3, 4
March 2023	Pre-registration begins for Fall semester	CLSCC MCBOE	Enrollment for Fall Semester will increase by 20%	2
	Host Career Expo/Career Awareness event K8	CLSCC MCBOE CLSCC Recruitment Team Industry Partners	Career Awareness events will be held at K-8 schools promoting MEP careers. Monroe Center will host Career Expo	2, 3
April 2023	Classes Continue at SHS and CLSCC Monroe Center	CLSCC MCBOE		2, 3
	GIVE Grant Advisory Council Meeting Quarterly Meeting	CLSCC MCBOE	Minutes and sign in sheets will be collected.	5
	NC3 testing begins	HVAC instructor	75% of students will successfully pass NC3 certifications	4

Mechanical, Electrical, Plumbing with major concentration in HVAC and Refrigeration

	Develop end of course survey for Spring Semester Courses	HVAC Instructor	Surveys will be completed by May 2023	2, 3
May 2023	Continue Courses	HVAC Instructor	Students successfully completing certifications	2, 3, 4
	Complete end of course survey for Spring Semester courses	HVAC instructor	Surveys completed and summarized for feedback	2, 3
Summer 2023				
June 2023	GIVE Grant Advisory Council quarterly meeting held	CLSCC MCBOE	Updates and feedback will be provided in regards to the first year of the program. What worked, what needs to be improved.	5
	Recruit Adult population	CLSCC Recruitment team MCBOE	Inquiries will be tracked	2, 3,
July 2023	Continue marketing efforts for adult population	CLSCC Recruitment team MCBOE		2, 3
Fall 2023				
August 2023	Begin Fall semester classes	CLSCC MCBOE	CLasses will be held at SHS and CLSCC	2, 3
September 2023	Classes Continue at SHS and MC Center	CLSCC MCBOE	CLasses will be held at SHS and CLSCC	2, 3
October 2023	NC3 first certification training/testing begins	HVAC Instructor	50% of students pass first NC3 certification	4
	Registration Begins for Spring Semester	MCBOE Guidance Counselors/ CLSCC	Enrollment of students into spring semester	2, 3

Mechanical, Electrical, Plumbing with major concentration in HVAC and Refrigeration

November 2023	GIVE Grant Advisory Council quarterly meeting Classes Continue	MCBOE CLSCC HVAC Instructors	Minutes of meeting and sign in sheets will be maintained Students enrolled and successfully completing classes	5
	Faculty member recruits partners for WBL	MCBOE Guidance Counselors CLSCC	Documentation and tracking of industry visits	2, 3, 5
	Develop end of course surveys for fall semester	HVAC instructor	Survey administered by end of semester	2, 3
Spring 2024				
January 2024	Courses Begin Spring Semester	MCBOE CLSCC	Enrollment for Spring at SHS and MC Center	2, 3
February 2024	Continue Courses	HVAC Instructor	Successful passing of the NC3 and NCCER testing.	1, 5
	Begin pre-registration for Fall Semester	CLSCC	Social media, advertising will reflect recruitment of adult population	2, 3
March 2024	Collect final data for summative report to be provided to grant partners and advisory members	CLSCC MCBOE	Summarize final data for GIVE Grant. Prepare final reports to THEC	1, 2, 3, 4, 5
April 2024	End of course evaluation and overall program evaluation	CLSCC MCBOE	CLSCC and MCBOE project directors will meet to discuss program improvements.	1, 2, 3, 4, 5
	Host and continue quarterly advisory committee meetings.	CLSCC MCBOE	Minutes and sign in sheets will be collected.	1, 2, 3, 4, 5

Mechanical, Electrical, Plumbing with major concentration in HVAC and Refrigeration

	Promote and recruit for Fall Adult population	HVAC instructor	75% of students will successfully pass NC3 certifications	4
	Finalize Industry certification testing of all students	HVAC Instructor		4

Appendix C:

Bibliography

Mechanical, Electrical, Plumbing with major concentration in HVAC and Refrigeration

Appendix C: Bibliography

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Appendix D:
MOUs and
Letters of
Support from
Economic
Agencies

Memorandum of Understanding

Between

Monroe County Chamber of Commerce

Monroe County Schools

Cleveland State Community College

This agreement is made this 2nd day of September 2021 between Monroe County Schools, a public institution, Cleveland State Community College, and The Monroe County Chamber of Commerce located at 520 Cook Street, Suite A, Madisonville, TN 37354.

In the spirit of friendship and mutual interest in cooperation, Monroe County Schools and The Monroe County Chamber of Commerce enter into the Memorandum of Understanding (MOU) to promote joint education and business collaboration and agree as follows:

SCOPE OF COLLABORATION ON GIVE 2.0 GRANT

- Working with Chamber clients in providing guest speakers to the classes in the HVAC program: construction companies, HVAC companies, etc.
- Providing HR representatives from various companies to address "soft skills" in the workplace
- Host Job Fairs
- Promote HVAC program information through the Chamber of Commerce client base, members, industries, parent, and/or members of the community
- As needed, serve as a host site for CTE and industry advisory committee meetings.
- Provide program advisement
- Provide updates regarding workforce development needs and trends.

DURATION AND EVALUATION

This MOU shall be in effect for a period of thirty (30) months from the beginning date of the GIVE grant award announcement. Either party may request termination of the agreement, in writing, ninety (90) days prior to the proposed termination date. Any activities in progress at the time of termination shall be permitted to conclude as planned unless otherwise agreed in writing.

A joint evaluation of the MOU will be initiated by the designated representatives six (6) months prior to the grant end date. Following the evaluation, the MOU may be renewed and resigned for an addition five (5) year period.

Amendments to the MOU may be requested, in writing, by either party and approved by the authorized signatories.


NON -DISCRIMINATION

The parties agree not to discriminate on the bases of religion, race, creed, national or ethnic origin, sex, age, handicap, political affiliation, sexual orientation, disability, or status as a veteran.

FERPA

The parties acknowledge that information (if any) received from Monroe County Schools regarding students may be protected by the Family Education Rights and Privacy Act "FERPA" and agrees to use such information only for the purpose for which it was disclosed and not to make it available to any third party without first obtaining the Student's written consent. For the purposed of this Agreement, Home Institution shall be deemed to be "school official."


For: The Monroe County Chamber of Commerce


Brandy Gentry

TITLE: President/CEO

DATE: 9/14/2021

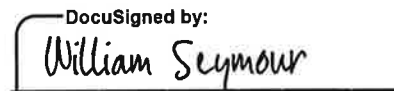
For: Monroe County Schools

DocuSigned by:

Dr. Kristi Windsor

TITLE: Director of Schools

DATE: 9/13/2021

For: Cleveland State Community College

DocuSigned by:

Dr. William Seymour

TITLE: President



Tellico Reservoir
DEVELOPMENT AGENCY

Memorandum of Understanding
Between
Cleveland State Community College
Monroe County Schools
And
Tellico Reservoir Development Agency

This Memorandum of Understanding (MOU) is entered into on this 7th day of September 2021 by and between Cleveland State Community College, Monroe County Schools, and Tellico Reservoir Development Agency (TRDA). Cleveland State Community College, Monroe County Schools, and Tellico Reservoir Development Agency agree that collaboration in developing an educated, skilled workforce would be mutually beneficial to the community.

Building on successful collaboration in Career and Technical programs with Cleveland State Community College, this HVAC program would assist the school system in the expansion of career ready programs and bolster a workforce-ready flow of students. Over 41.5% of the jobs in Monroe County are in Manufacturing. With that in mind, there is always a need for commercial HVAC crews in all the facilities.

The areas in which TRDA may include:

- Recommend subject matter expert(s) to support the development of students in response to hiring needs and that build career advancement opportunities
- Attend Advisory Council meetings and make suggestions/recommendations that will benefit the student(s), the institutions, and the industries.
- Promote industry partner recruiting efforts through existing and prospective industry relationships for Work Based Learning opportunities.
- Provide updates for workforce data and labor market trends

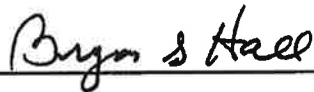
The parties anticipate that these items will occur during the period of the MOU. However, neither party is obligated to agree to any minimum number of activities, nor is this MOU intended to preclude either party from entering into similar agreements with other institutions.

This MOU shall be identified as the parent document of any program agreement executed between the parties. Further agreements concerning any program shall provide details concerning the specific commitments made by each party and shall not become effective until they have been reduced to writing executed by the duly authorized representatives of the parties.

The primary contact for this MOU is Executive Director for Tellico Reservoir Development Agency. As previously noted, the parties shall enter into specific written agreements whenever appropriate to clarify and define the nature, extent, and terms of operation for the proposed collaborations.

This MOU will take effect upon the awarding of the grant and will be valid for 30 months from the date of the award unless terminated by one of the parties. Either party may withdraw from this MOU provided written notification of the withdrawal is given to the other party at least ninety, 90 days prior to the desired withdrawal date. Each party will have copies of this agreement.

The following authorized individuals have signed the present MOU on behalf of their respective institutions:

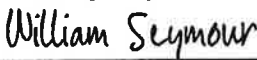

Bryan Hall, Executive Director
Tellico Reservoir Development Agency

9-7-2021
Date

DocuSigned by:

C804BF4825F04D7
Dr. Kristi Windsor, Director of Schools
Monroe County Schools

9/14/2021
Date

DocuSigned by:

Dr. William Seymour, President
Cleveland State Community College

9/13/2021
Date

Appendix E:
MOUs and
Letters of
Support from
Industry
Partners



Memorandum of Understanding

Between

Cleveland State Community College

Monroe County Schools

And

TRANE

This Memorandum of Understanding (MOU) is entered into on this 10th day of September 2021 by and between Cleveland State Community College, Monroe County Schools, and TRANE. Cleveland State Community College, Monroe County Schools, and TRANE agree that collaboration in developing an educated, skilled workforce would be mutually beneficial to the community and to our industry.

As an engineer for Trane here in east Tennessee, we see fewer and fewer great candidates out there in the marketplace to hire as certified HVAC and Controls technicians. We are working with several K-12 school systems to help launch, (or bolster) existing HVAC Programs for their students. We are actively supporting Janie Evans and Phillip Carroll in Monroe County Schools and Cleveland State Community College to help launch a program that students across the county can participate. We hope to continue our support as they build this program to include dual enrollment / dual credit opportunities with Cleveland State Community College. Dual credit opportunities have been available for 4-year college bound students for years. This same jumpstart opportunity should be available to our CTE students. We have high paying HVAC careers that are available to these students now, and with your support, they can get their sooner.

The areas in which TRANE may include:

- Support the development and implementation of the HVAC program for Monroe County Schools and Cleveland State Community College by providing subject matter experts.
- Attend Advisory Council meetings and make suggestions/recommendations that will benefit the student(s), the institutions, and the industries.
- Assist in the guidance of appropriate HVAC industry certifications such as NC3 such as:
 - NC3 Trane Building Automation Systems
 - NC3 Trane Residential HVAC – Airflow
 - NC3 Trane Residential HVAC - Air-to-Air Heat Pumps
 - NC3 Trane Residential HVAC - Refrigeration Diagnostics
 - NC3 Trane Residential HVAC - Variable Speed Motors
- Provide Work Based Learning opportunities.
- Provide updates for workforce data and labor market trends
- Participate in "Soft Skills" training for students in the classroom.

The parties anticipate that these items will occur during the period of the MOU. However, neither party is obligated to agree to any minimum number of activities, nor is this MOU intended to preclude either party from entering into similar agreements with other institutions.

This MOU shall be identified as the parent document of any program agreement executed between the parties. Further agreements concerning any program shall provide details concerning the specific commitments made by each party and shall not become effective until they have been reduced to writing executed by the duly authorized representatives of the parties.

The primary contact for this MOU is Nancy McBee, Business Development Manager at TRANE. As previously noted, the parties shall enter into specific written agreements whenever appropriate to clarify and define the nature, extent, and terms of operation for the proposed collaborations.

This MOU will take effect upon the awarding of the grant and will be valid for 30 months from the date of the award unless terminated by one of the parties. Either party may withdraw from this MOU provided written notification of the withdrawal is given to the other party at least ninety, 90 days prior to the desired withdrawal date. Each party will have copies of this agreement.

The following authorized individuals have signed the present MOU on behalf of their respective institutions:

DocuSigned by:

2710601A16A244E...
Nancy McBee, LEED® Accredited Professional
Business Development Manager

9/15/2021


Date

DocuSigned by:

C804BF4825F04D7...
Dr. Kristi Windsor, Director of Schools
Monroe County Schools

9/16/2021

Date

DocuSigned by:

A5F732A118FA40F...
Dr. William Seymour, President
Cleveland State Community College

9/15/2021

Date



Memorandum of Understanding

Between

Cleveland State Community College

Monroe County Schools

And

Harris Heating and Air

This Memorandum of Understanding (MOU) is entered into on this 10th day of September 2021 by and between Cleveland State Community College, Monroe County Schools, and Harris Heating and Air. Cleveland State Community College, Monroe County Schools, and Harris Heating and Air agree that collaboration in developing an educated, skilled workforce would be mutually beneficial to the community and to our industry.

Struggling to hire qualified HVAC technicians, we look forward to work with Monroe County Schools and Cleveland State Community College to help launch an HVAC Programs for their students. We are actively supporting Janie Evans and Phillip Carroll in Monroe County Schools and Cleveland State Community College to help launch a program that students across the county can participate. We hope to continue our support as they build this program to include dual enrollment / dual credit opportunities with Cleveland State Community College. Dual credit opportunities have been available for 4-year college bound students for years. This same jumpstart opportunity should be available to our CTE students. We have high paying HVAC careers that are available to these students now, and with your support, they can get their sooner.

The areas in which Harris Heating and Air may include:

- Support the development and implementation of the HVAC program for Monroe County Schools and Cleveland State Community College by providing subject matter experts.
- Attend Advisory Council meetings and make suggestions/recommendations that will benefit the student(s), the institutions, and the industries.
- Provide Work Based Learning opportunities.
- Participate in "Soft Skills" training for students in the classroom.

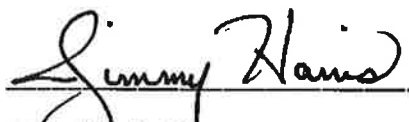
The parties anticipate that these items will occur during the period of the MOU. However, neither party is obligated to agree to any minimum number of activities, nor is this MOU intended to preclude either party from entering into similar agreements with other institutions.

This MOU shall be identified as the parent document of any program agreement executed between the parties. Further agreements concerning any program shall provide details concerning the specific commitments made by each party and shall not become effective until they have been reduced to writing executed by the duly authorized representatives of the parties.

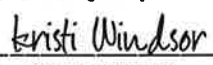
The primary contact for this MOU is Jimmy Harris. As previously noted, the parties shall enter into specific written agreements whenever appropriate to clarify and define the nature, extent, and terms of operation for the proposed collaborations.

This MOU will take effect upon the awarding of the grant and will be valid for 30 months from the date of the award unless terminated by one of the parties. Either party may withdraw from this MOU provided written notification of the withdrawal is given to the other party at least ninety, 90 days prior to the desired withdrawal date. Each party will have copies of this agreement.

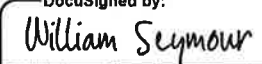
The following authorized individuals have signed the present MOU on behalf of their respective institutions:


Jimmy Harris, Owner
Harris Heating and Air

9/15/21
Date

DocuSigned by:

C804BF4825F04D7...
Dr. Kristi Windsor, Director of Schools
Monroe County Schools

9/15/2021
Date

DocuSigned by:

Dr. William Seymour, President
Cleveland State Community College

9/16/2021
Date

Appendix F: MOUs and Letters of Support from LEAs

Cleveland State Community College

2021 Governor's Investment in Technical Education (GIVE 2.0)

Mechanical, Electrical, Plumbing (MEP) with Major Concentration
in HVAC and Refrigeration

This Memorandum of Understanding (MOU) is entered into this 14th day of September 2021 by and between Cleveland State Community College (CLSCC) and Monroe County Schools. The above mentioned partners agree that cooperation in developing an educated, skilled workforce would be mutually beneficial. In the spirit of friendship and with mutual interest in cooperation in developing an educated and skilled workforce, the above mentioned partners enter into the Memorandum of Understanding and agree as follows:

Article 1: SCOPE OF COLLABORATION

1.1 Areas of collaboration may be proposed by the institutions and may include, but not limited to:

- Provide opportunities for teacher professional development, providing classroom instruction and additional lab space, and providing other funding sources for additional equipment and maintenance of that equipment.
- Continue to recruit and actively promote the HVAC program to K-8 students, parents and industry partners.
- Provide other funding sources for secondary equipment and maintenance.
- Provide classroom and lab space, utilities, and technology.
- Pursue additional grant opportunities to align with this initiative.
- Absorb the cost of a full-time high school instructor for the MEP program at the end of the grant period

1.2 Any specific activity developed under this MOU will describe the scope of the proposed activity, intended outcomes, budget, and responsible departments or individuals.

1.3 All activities will be subject to the availability of funds and the approval of each institution's authorized representatives.

ARTICLE 2: DURATION AND EVALUATION

2.1 This MOU shall be in effect for a period of 30 months from the beginning date of the GIVE grant award announcement. Any party may request termination of this agreement, in writing, ninety (90) days prior to the proposed termination date. Any activities in progress at the time of termination shall be permitted to conclude as planned unless otherwise agreed in writing.

2.2 A joint evaluation of the MOU will be initiated by the designated representatives six (6) months prior to the grant end date. Following the evaluation, the MOU may be renewed and resigned for an additional five (5) year period.

2.3 Amendments to this MOU may be requested, in writing, by any party and approved by the authorized signatories.

ARTICLE 3: NON-DISCRIMINATION

The parties agree not to discriminate on the basis of religion, race, creed, national or ethnic origin, sex, age, handicap, political affiliation, sexual orientation, disability, or status as a veteran.

ARTICLE 4: COMPLIANCE WITH LAW

The parties specifically intend to comply with all applicable laws, rules and regulations as they may be amended from time to time. If any part of this agreement is determined to violate federal, state, or local laws, rules, or regulations, the parties agree to negotiate in good faith revisions to any such provisions. If the parties fail to agree within a reasonable time to revisions required to bring the entire agreement into compliance, any party may terminate this agreement upon thirty (30) days prior written notice to the other parties.

ARTICLE 5: FERPA

The parties acknowledge that information (if any) received from educational institutions regarding students may be protected by the Family Education Rights and Privacy Act "FERPA", and agrees to use such information only for the purpose for which it was disclosed and not to make it available to any third party without first obtaining the student's written consent. For the purposes of this agreement, Home Institution shall be deemed to be a "school official."

For Monroe County Schools

DocuSigned by:

C804BF4825R04D7
Director of Schools

DATE: 9/15/2021

For Cleveland State Community College

DocuSigned by:
William Seymour

President 155733A118FA40F...

DATE: 9/15/2021

Appendix G: Additional MEP Program Details

NC3 Residential Certifications



NC3 Residential Certifications

NC3 and Trane help shape tomorrow's workforce through certification programs, industry supported curriculum and hands-on training. Students receive an industry-validated NC3 certificate as proof of skills achievement that can offer enhanced employment potential and higher productivity on the job.

1 AIRFLOW CERTIFICATION

- Understand airflow characteristics & dynamics
- Understand duct systems, grills, registers and diffusers
- Measure duct pressures
- Measure air volume in CFM
- Understand applications in duct design and installation
- Demonstrate the proper use of appropriate tools and test instruments

2 REFRIGERATION DIAGNOSTICS CERTIFICATION

- Understand refrigerant cycle components & how they function
- Understand refrigerant charging and testing procedures
- Demonstrate proper service procedures
- Demonstrate proper troubleshooting techniques
- Demonstrate the proper use of appropriate tools and test instruments

3 VARIABLE SPEED MOTORS CERTIFICATION

- Understand motor design and components
- Understand applications and sequence of operation of various motors
- Utilize proper service procedures
- Demonstrate proper steps and techniques in troubleshooting motor issues
- Demonstrate the proper use of appropriate tools and test instruments

4 AIR-TO-AIR HEAT PUMP CERTIFICATION

- Understand the principles of the heat pump cycle
- Understand the operation of each component and the application of heat pump equipment
- Demonstrate knowledge of dual fuel configurations
- Understand charging/troubleshooting procedures per the manufacturer's specifications
- Utilize proper service procedures
- Demonstrate the proper use of appropriate tools and test instruments



Trane is a proud partner of the National Coalition of Certification Centers. Certifications are developed and administered by NC3 (National Coalition of Certification Centers) and are compatible with other industry recognized certifications. For more information, contact NC3 at nc3.net.